



Armed Forces College of Medicine AFCM



Planes & regions of abdomen + Peritoneum

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INTENDED LEARNING OBJECTIVES (ILO)



By the end of the lecture, the candidate should be able to:

- 1. Define the peritoneum: parietal/visceral peritoneum; Greater/lesser sacs**
- 2. Enumerate the Intraperitoneal and retroperitoneal viscera.**
- 3. Comment on the clinically related problems.**
- 4. Describe the abdominal quadrants and regions, the vertebral levels of the transpyloric, subcostal and**

Lecture Plan



1. Part 1 (10 min) Introduction to peritoneum
2. Part 2 (20 min) Layers of abdomen
3. Part 3 (10 min) Applied points & Subdivisions of peritoneal cavity
4. Part 4 (10 min) Abdominal planes & quadrants (5 min)

Peritoneum



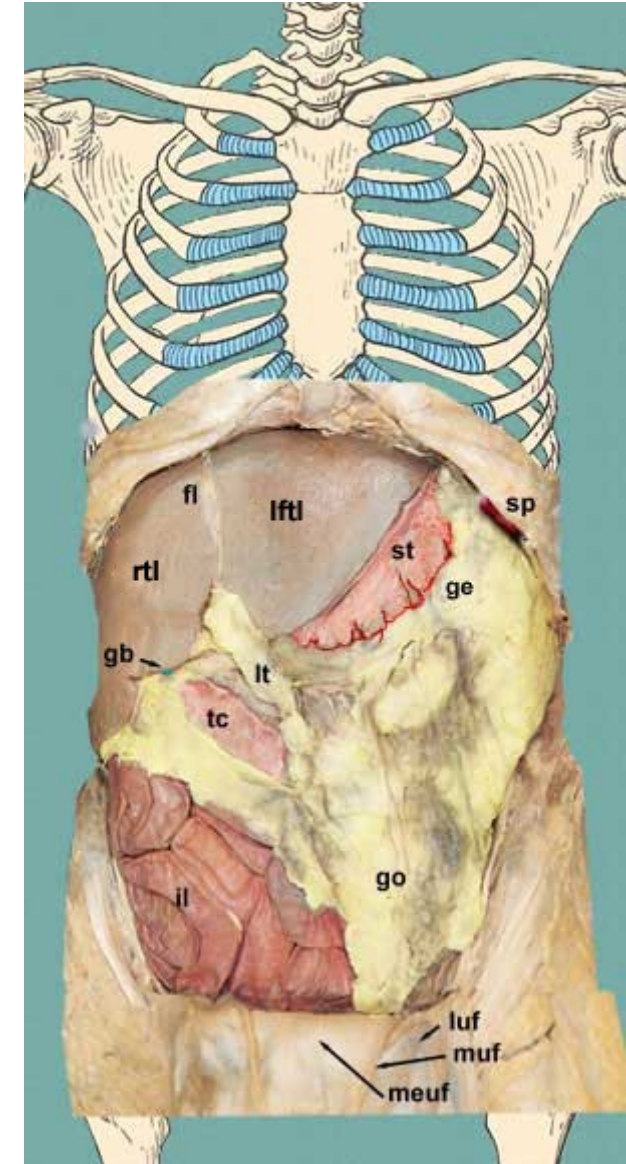
Definition

The peritoneum is a closed serous sac lining the walls of the abdominal & pelvic cavities and covering the abdominal & pelvic viscera. The sac is completely closed in male but has 2 openings in female (for uterine tubes)

Arrangement

Has 2 layers, **parietal peritoneum** lines the wall of the abdominal cavity, and the **visceral peritoneum** covers the abdominal organs.

The potential space between the parietal and visceral layers of peritoneum is called the **peritoneal cavity**. The peritoneal cavity contains a small amount of serous fluid





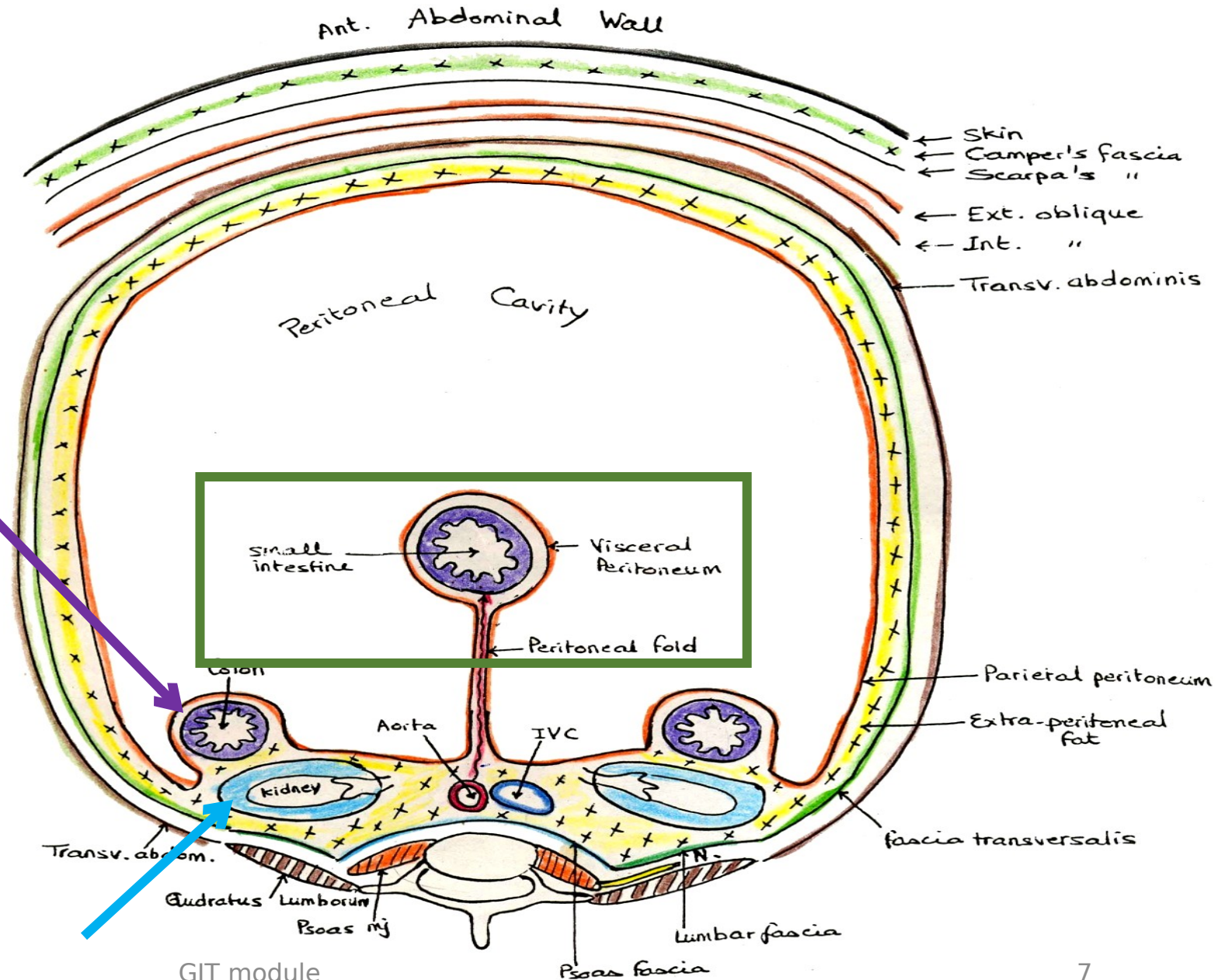
**Abdominal organs
develop on posterior
abdominal wall**

Peritoneal cavity

**Nearly all organs develop
in the post. abdominal
wall & travel their way
towards the ant.
abdominal wall.**

What is the relation bet. different abd. organs to the peritoneum ? :

- a. If the organs do **not** move **at all** (e.g. kidney & pancreas → **Retro-peritoneal organs** (most post. placed organs).)
- b. If the organs do **not** move **excessively** (e.g. duodenum & colon) → They are covered by peritoneum **ant. & lat.**
- c. If the organs **move excessively** e.g. stomach & small intestine → They are



INTRA-PERITONEAL ORGAN

Completely covered by visceral peritoneum & has a **peritoneal fold**

Stomach :

Omentum:

Mesentery

Large Int :

Mesocolon
Liver & Spleen :

Contents of any peritoneal fold

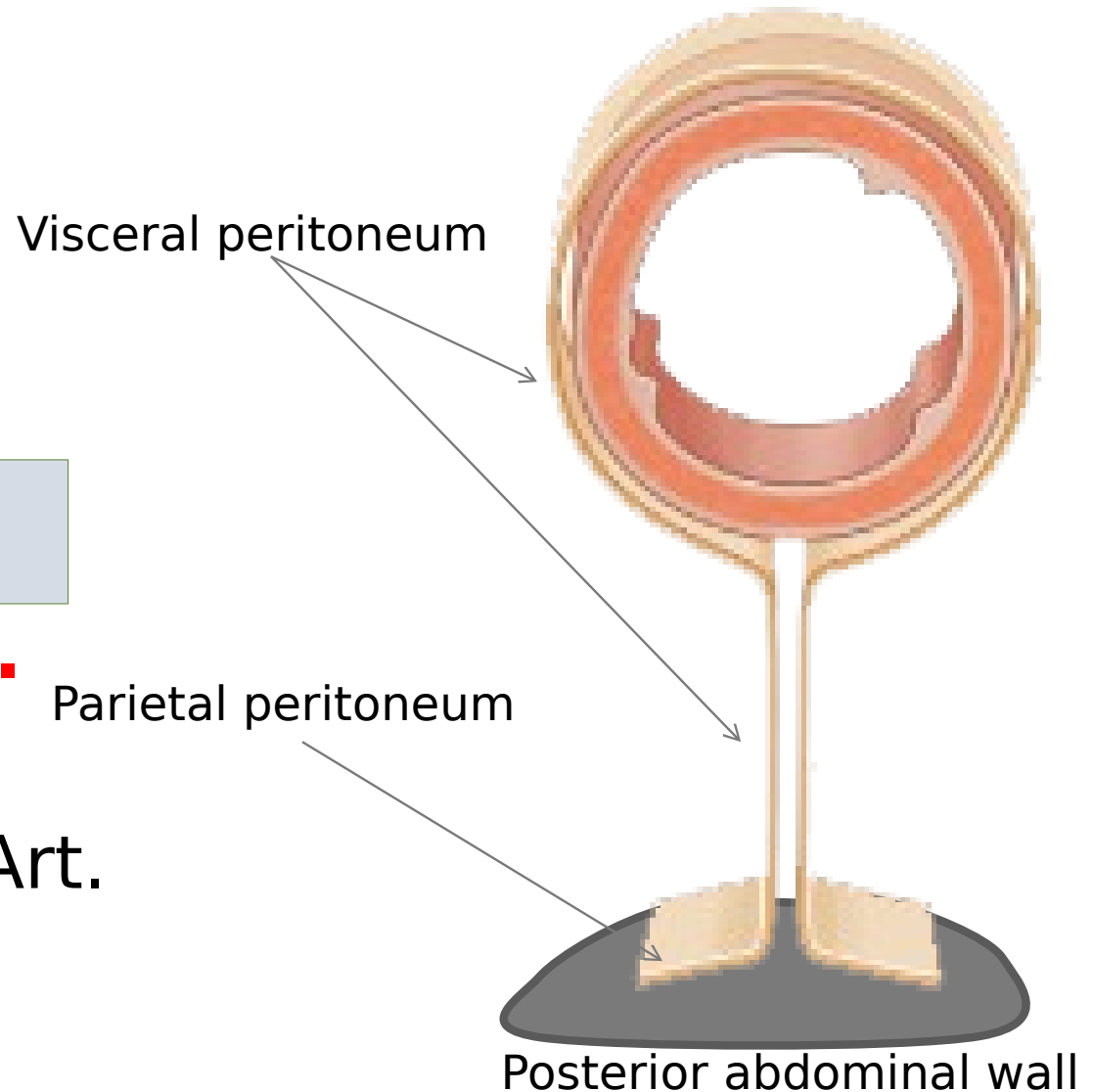
- The **organ** & its **Art. supply.**

- **3 Fixed contents:**

1- **S**ymp. plexus around the Art.

2- **L**Ns.

3- Extraperitoneal **F**at.



INTRA-PERITONEAL ORGANS

**Arranged in 5
partitions**

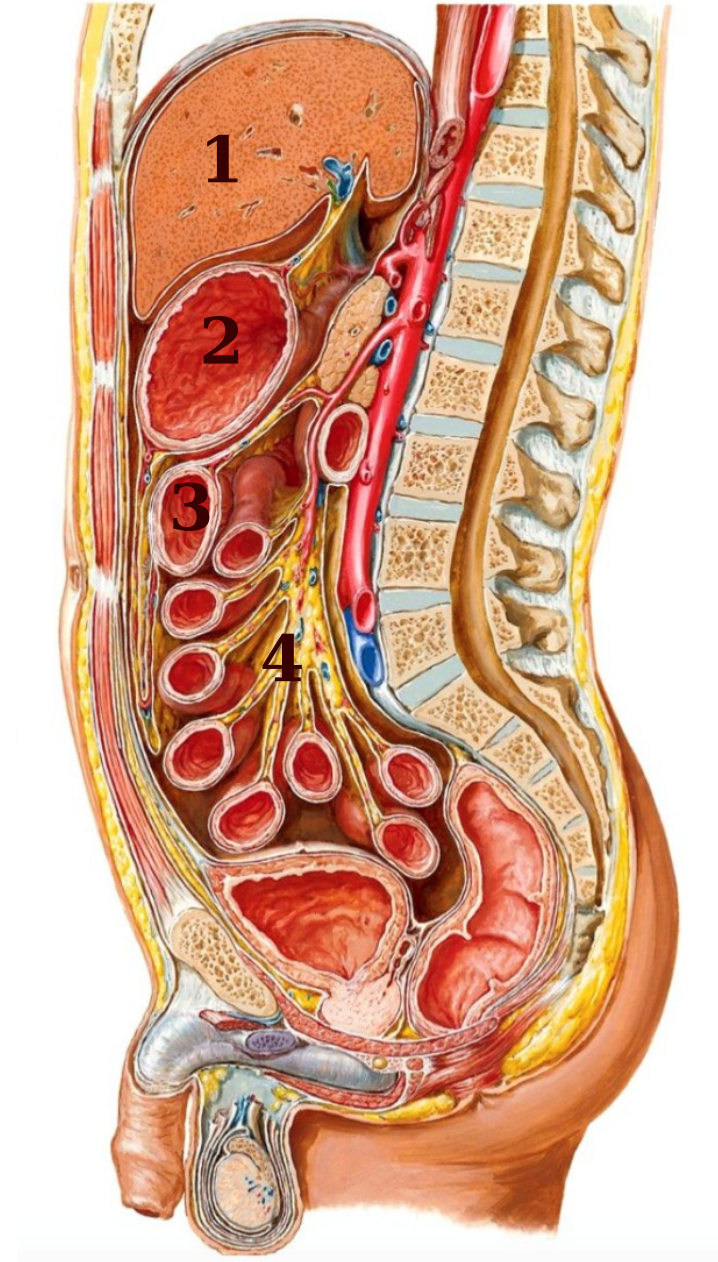
1st : Liver

2nd : Stomach

3rd : Transverse

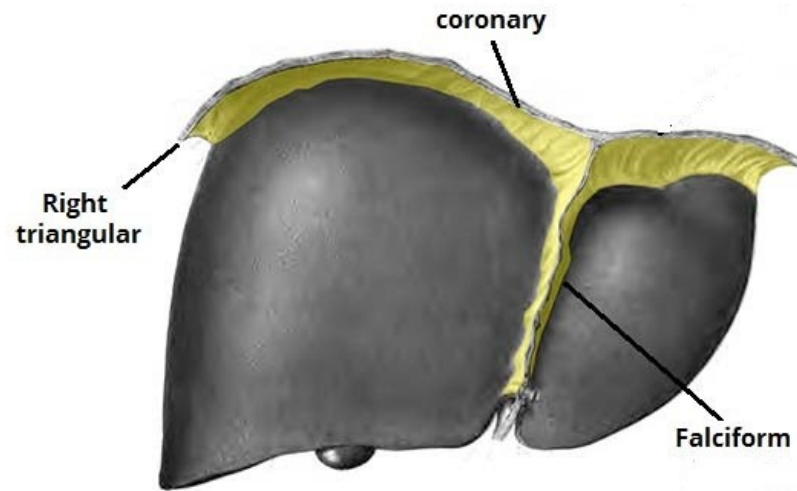
4th : Jejunum & Ileum

**5th : Sigmoid colon +
Appendix**

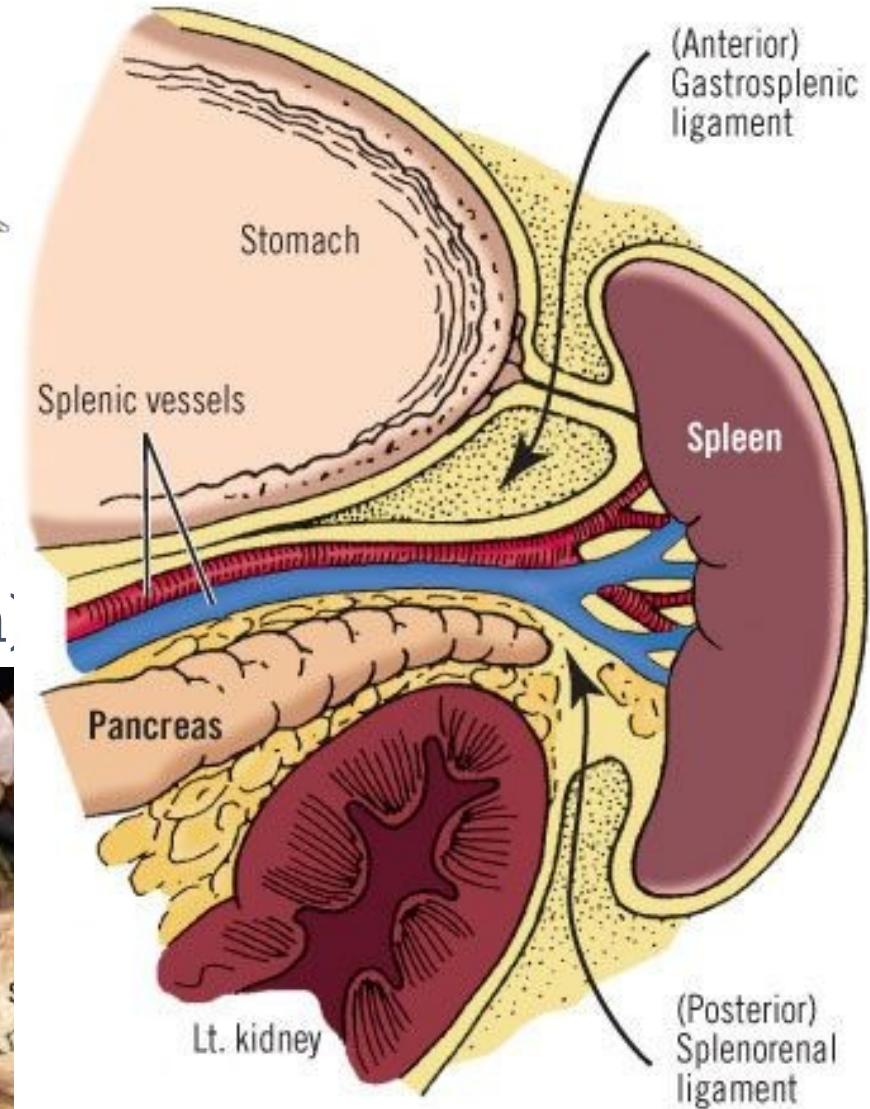
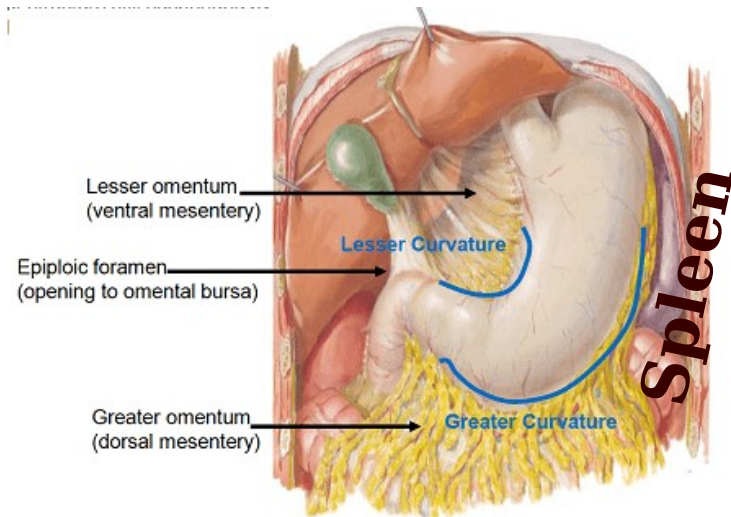


INTRA-PERITONEAL ORGAN

1st : Liver (Ligaments)



2nd : Stomach (Omentum)

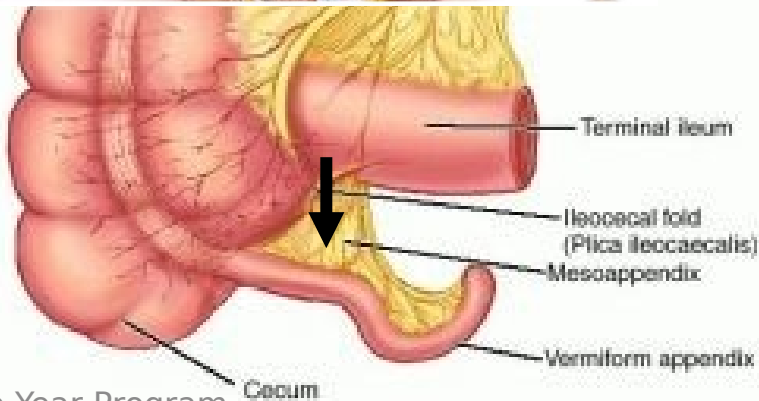
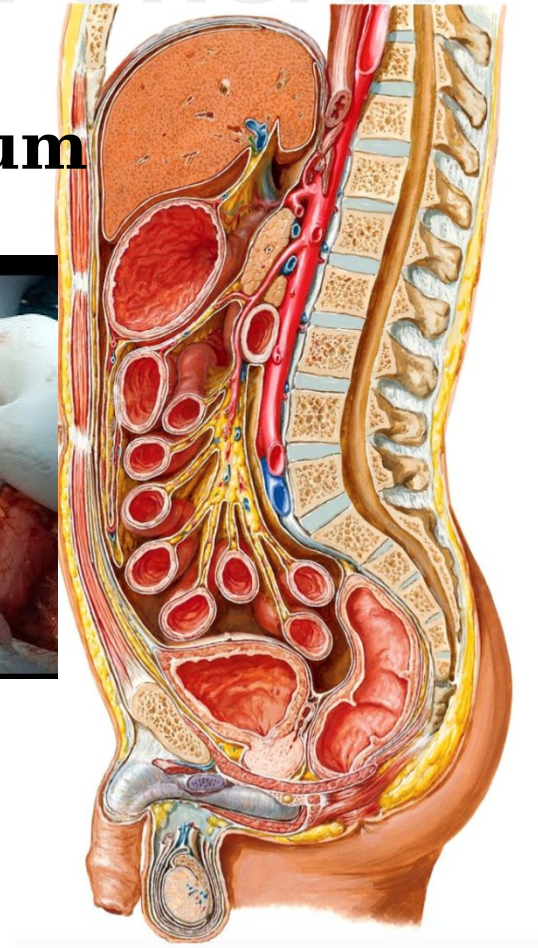
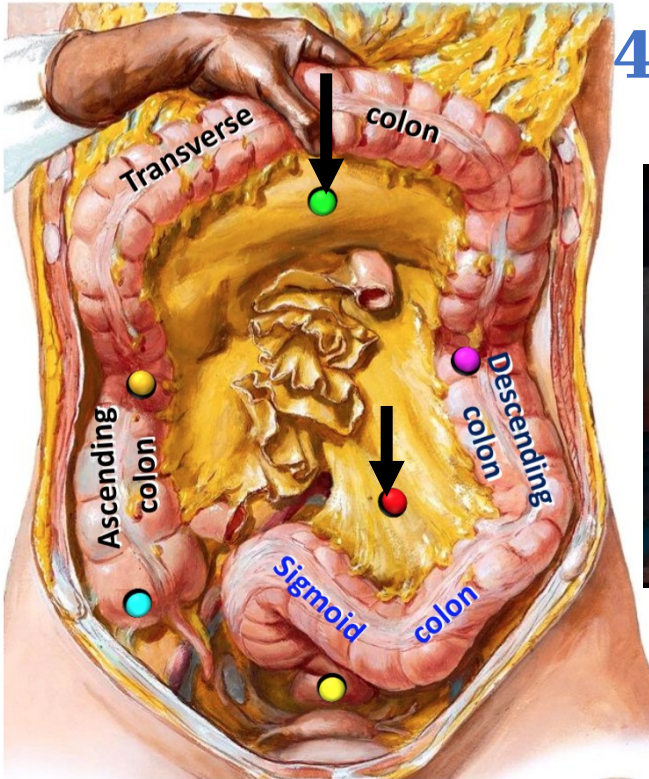


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INTRA-PERITONEAL ORGAN

3rd : Transverse colon

4th : (Meso) Jejunum & Ileum (Mesentery)



5th : Sigmoid colon + Appendix (Meso)

Lecture Quiz



A 39-year-old female is brought to the emergency room after a motor vehicle collision. CT of abdomen reveals a hematoma of a retroperitoneal origin. Injury of which of the following organs is responsible for such a condition?

- A.Liver.
- B.Stomach.
- C.Spleen.
- D.Transverse colon.
- E.Pancreas.

Ascites



- Ascites is an excessive accumulation of peritoneal fluid within the peritoneal cavity
- Ascites can occur secondary to:
 - 1) Liver cirrhosis (***portal*** venous congestion).
 - 2) Congestive heart failure (***systemic*** venous congestion).
 - 3) Malignant disease



Subdivision of peritoneal cavity

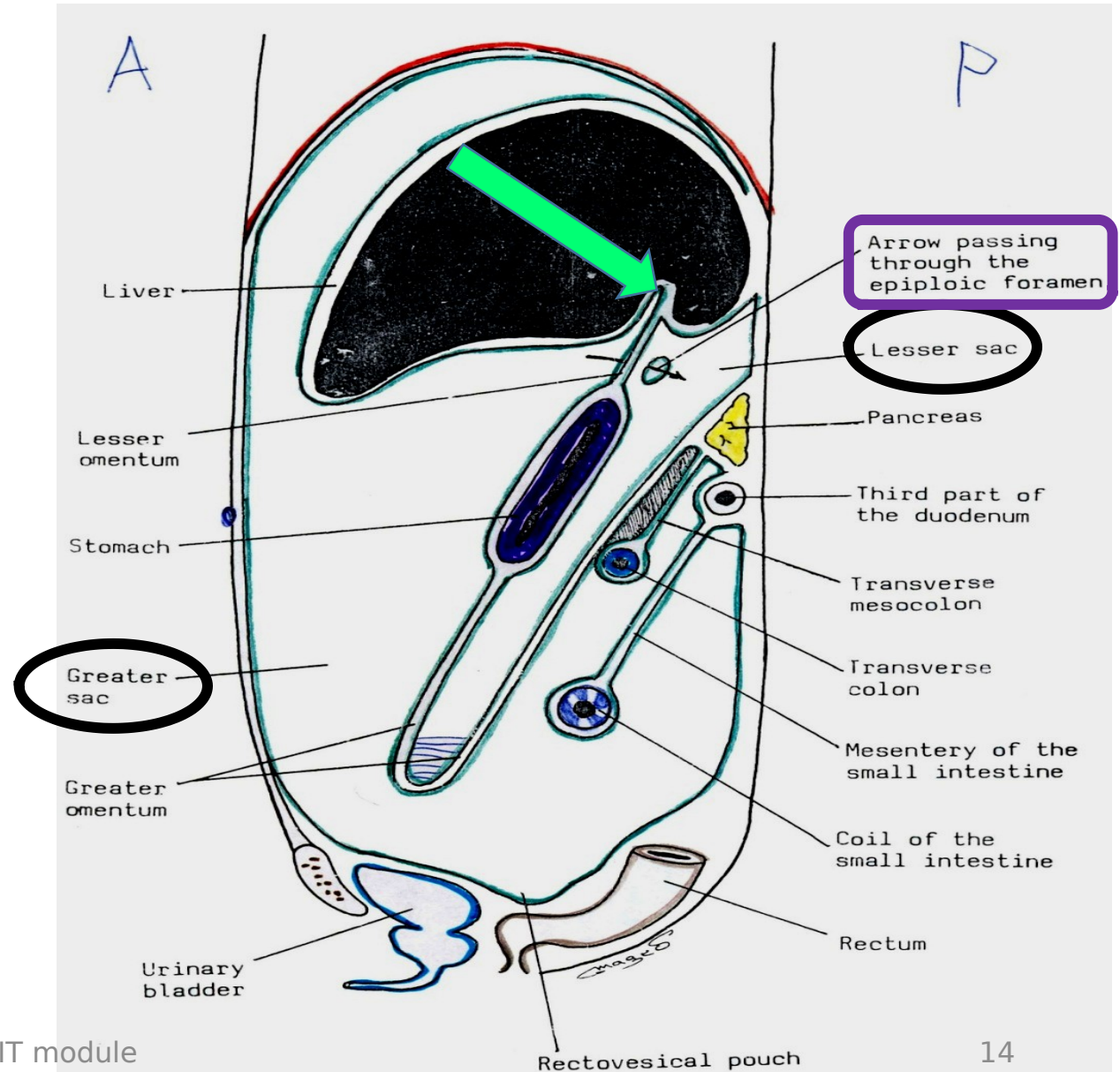


- Divided by stomach & its 2 omenta into:

1- Larger ant. part = Greater sac

2- Smaller post. part = Lesser sac

@ Both sacs communicate behind lesser omentum via
“Opening into lesser sac”
= Epiploic foramen = Omental foramen = Foramen of Winslow.



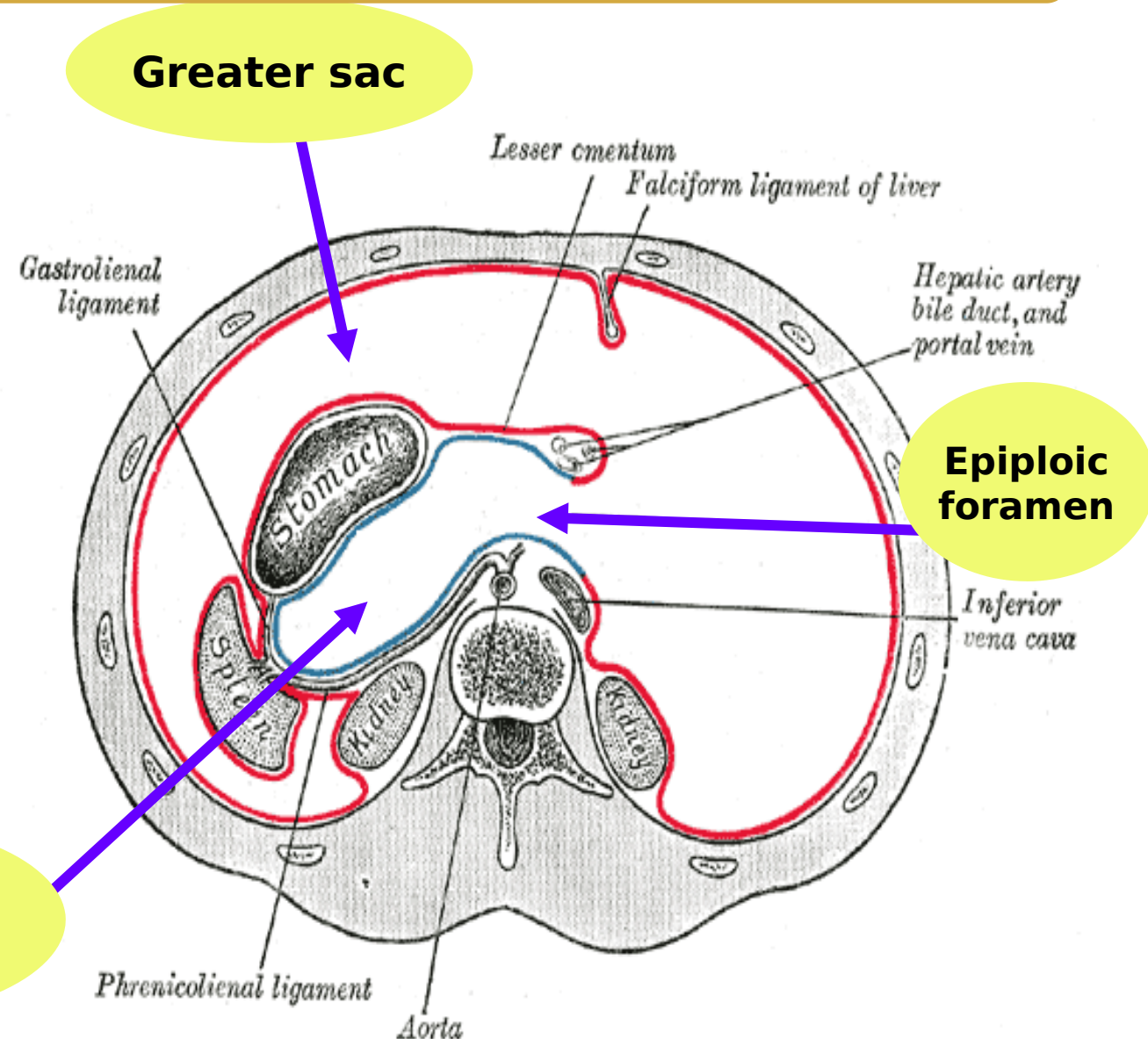
Subdivision of peritoneal cavity



The peritoneal cavity is divided into 2 sacs:

1. The **greater sac**.
2. The **lesser sac**.

The 2 sacs communicate at the **omental foramen = epiploic foramen** (opening into lesser sac) or foramen Winslow



Greater Sac



Divided by the transverse colon into:

1- Supracolic compartment

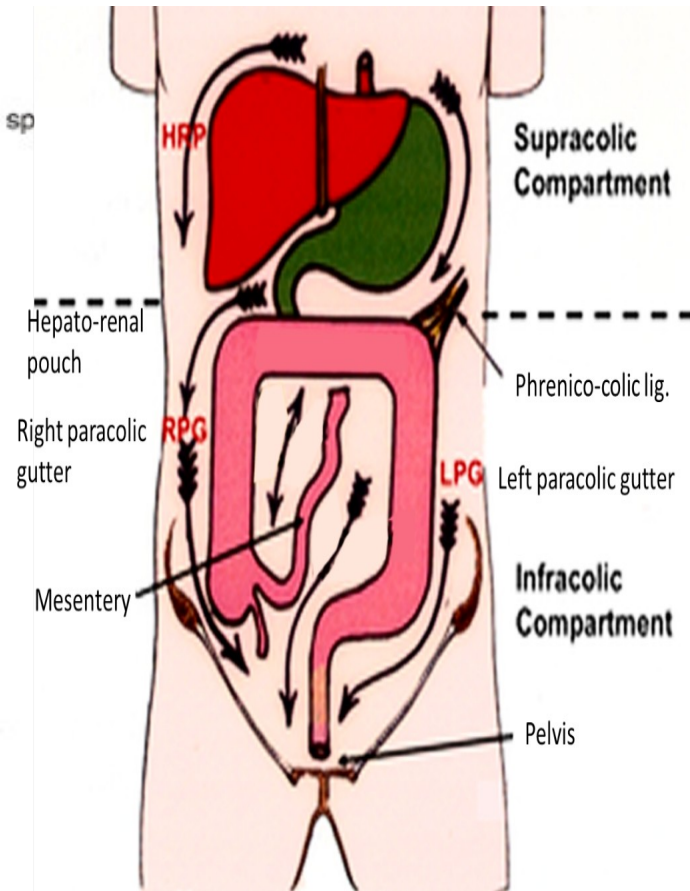
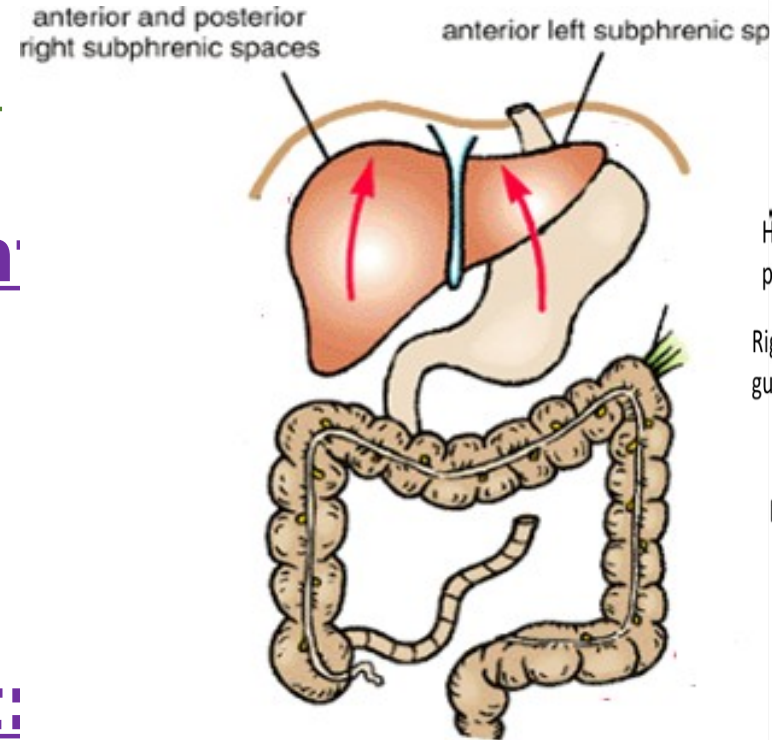
Incompletely divided by the falciform ligament into Rt. & Lt. parts.

2- Infracolic compartment:

Incompletely divided by the root of mesentery into:

a. Rt. part: completely closed sup. & inf.

b. Lt. part: opens below



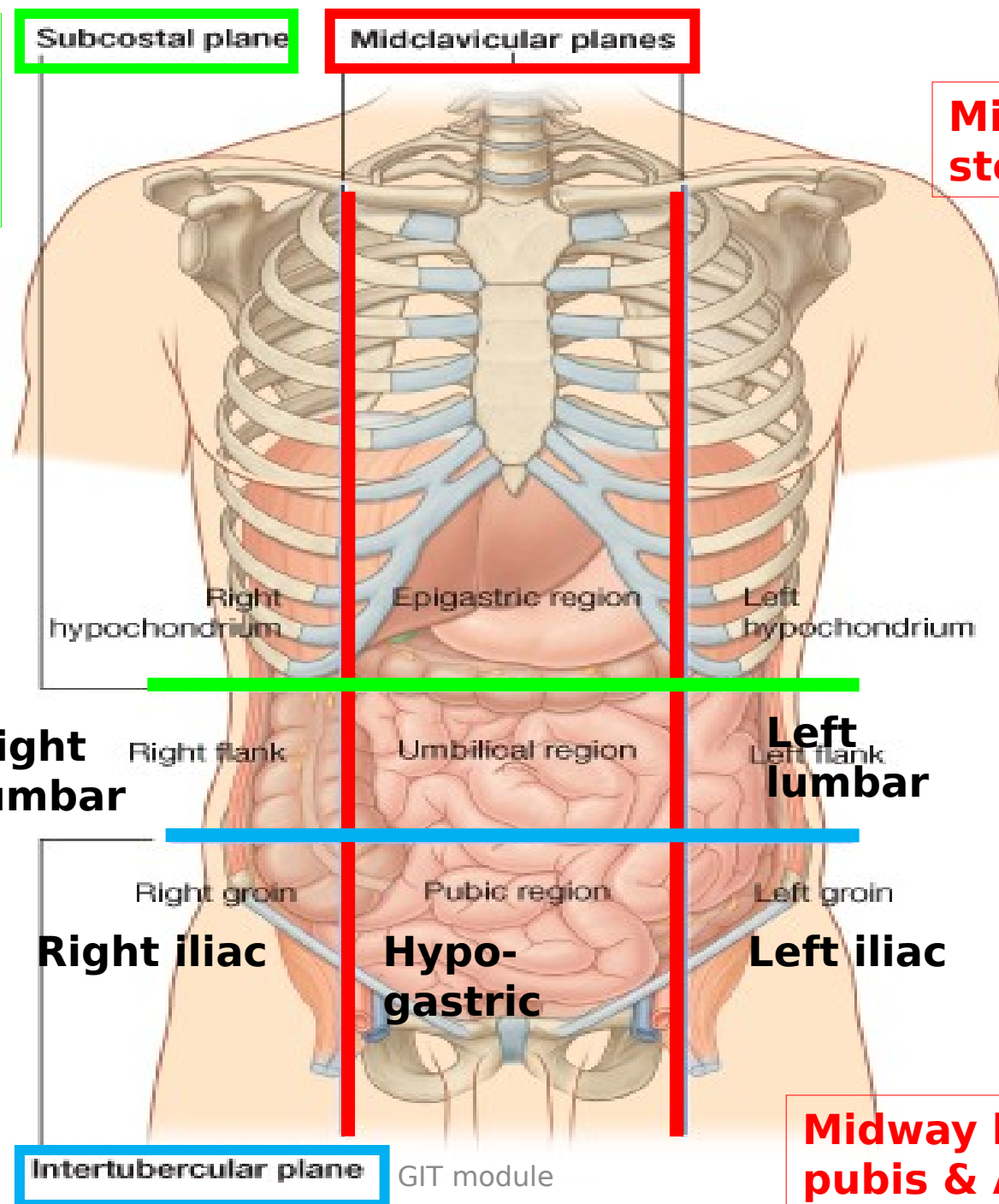
Abdominal planes & quadrants

- Just inf. to the costal margin.
- At the lower border of cc 10 = L3

4 planes & 9 quadrants

Elsevier. Drake et al:
Gray's anatomy for
student- www.studentconsult.com

- Bet. tubercles of iliac crests.
- At the level of L5

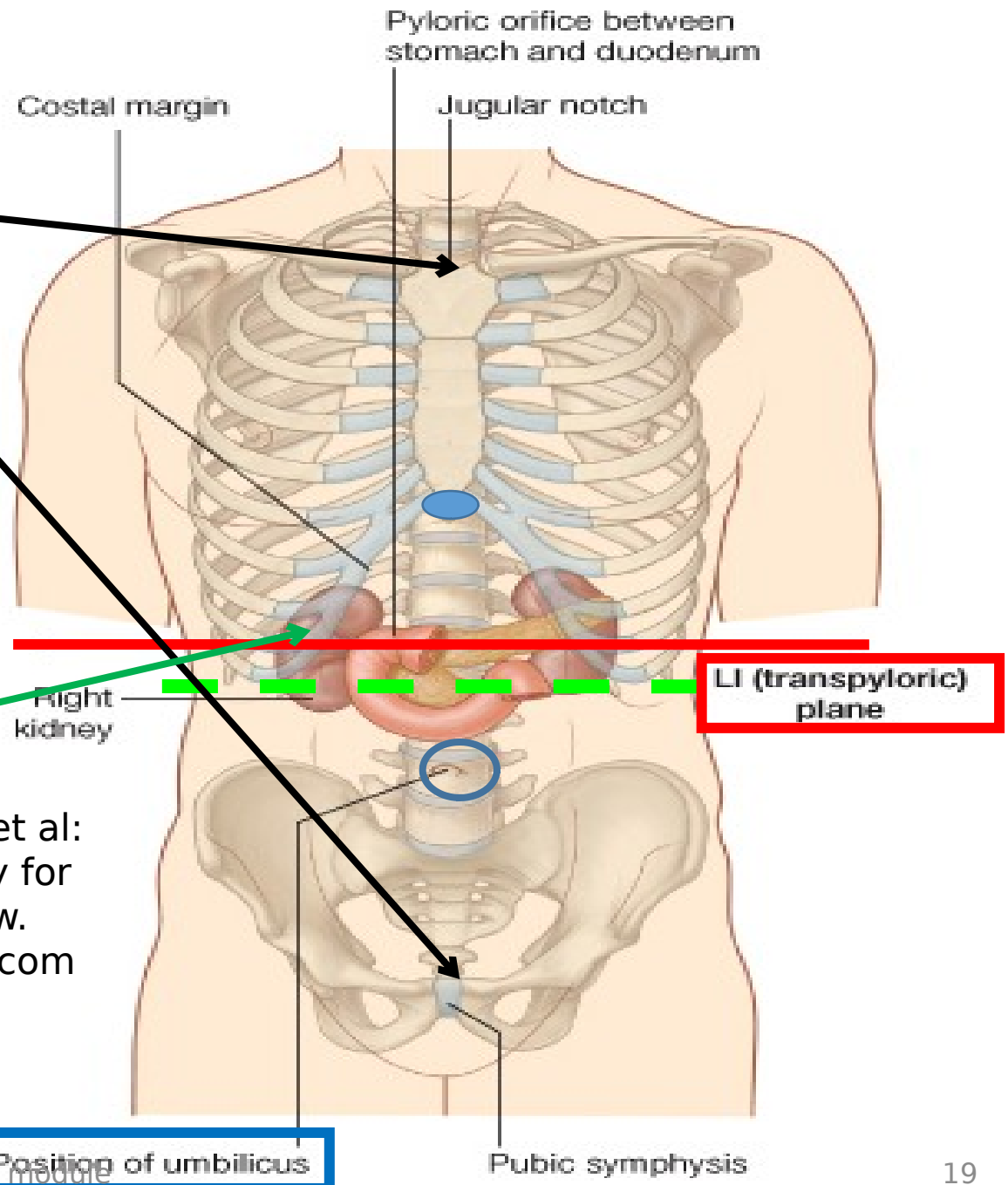


Transpyloric plane



- Midway bet. suprasternal notch & sup. border of symphysis pubis
 - Midway also bet. xiphoid process & umbilicus.
 - At the level of **L1**.
 - Cuts costal margin at tip of cc 9
- Elsevier. Drake et al:
Gray's anatomy for
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▪ Subcostal plane is at the lower border of cc 10 = L3





Lecture Quiz



The abdominal plane that is located at the level of the 3rd lumbar vertebra is the:

- A. Midclavicular.
- B. Intertubercular.
- C. Transumbilical.
- D. Transpyloric.
- E. Subcostal.

SUGGESTED TEXTBOOKS



Snell, Clinical Anatomy, 7th edition, p. 152; 157-168.

